

October 25, 2004

U.S. Nuclear Regulatory Commission  
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Mail Stop: OWFN P1-35  
Washington, D.C. 20555-0001

Gentlemen:

In the Matter of	)	Docket Nos. 50-259
Tennessee Valley Authority	)	50-260
		50-296

**BROWNS FERRY NUCLEAR PLANT (BFN) - UNITS 1, 2, AND 3 LICENSE  
RENEWAL APPLICATION - APPENDIX F - REQUEST FOR ADDITIONAL  
INFORMATION (RAI) (TAC NOS. MC1704, MC1705, AND MC1706)**

By letter dated December 31, 2003, TVA submitted, for NRC review, an application pursuant to 10 CFR 54, to renew the operating licenses for the Browns Ferry Nuclear Plant, Units 1, 2, and 3. As part of its review of TVA's license renewal application, the NRC staff, by letter dated October 8, 2004, identified areas where additional information is needed to complete its review.

The specific area requiring a request for additional information (RAIs) are related to Appendix F: Integration of Browns Ferry Unit 1 Restart and License Renewal Application. Drafted forms of these RAIs were discussed with the TVA Staff in a telephone conference call on September 15, 2004.

The enclosure to this letter contains the specific NRC requests for additional information and the corresponding TVA response.

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If you have any questions regarding this information,  
please contact Ken Brune, Browns Ferry License Renewal  
Project Manager, at (423) 751-8421.

I declare under penalty of perjury that the forgoing is  
true and correct. Executed on this 23<sup>rd</sup> day of October,  
2004.

Sincerely,

**Original signed by:**

T. E. Abney  
Manager of Licensing  
and Industry Affairs

Enclosure:  
cc: See page 3

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Enclosure

cc (Enclosure):

U.S. Nuclear Regulatory Commission  
Region II  
Sam Nunn Atlanta Federal Center  
61 Forsyth Street, SW, Suite 23T85  
Atlanta, Georgia 30303-8931

Mr. Stephen J. Cahill, Branch Chief  
U.S. Nuclear Regulatory Commission  
Region II  
Sam Nunn Atlanta Federal Center  
61 Forsyth Street, SW, Suite 23T85  
Atlanta, Georgia 30303-8931

NRC Senior Resident Inspector  
Browns Ferry Nuclear Plant  
10833 Shaw Road  
Athens, Alabama 35611-6970

NRC Unit 1 Restart Senior Resident Inspector  
Browns Ferry Nuclear Plant  
10833 Shaw Road  
Athens, Alabama 35611-6970

Kahtan N. Jabbour, Senior Project Manager  
U.S. Nuclear Regulatory Commission  
(MS 08G9)  
One White Flint, North  
11555 Rockville Pike  
Rockville, Maryland 20852-2739

Eva A. Brown, Project Manager  
U.S. Nuclear Regulatory Commission  
(MS 08G9)  
One White Flint, North  
11555 Rockville Pike  
Rockville, Maryland 20852-2739

Yaira K. Diaz-Sanabria, Project Manager  
U.S. Nuclear Regulatory Commission  
(MS 011F1)  
One White Flint, North  
11555 Rockville Pike  
Rockville, Maryland 20852-2739

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GLS:BAB

Enclosure

cc (Enclosure):

- A. S. Bhatnagar, LP 6-C
- K. A. Brune, LP 4F-C
- J. C. Fornicola, LP 6A-C
- D. F. Helms, LP 6A-C
- F. C. Mashburn, BR 4X-C
- R. G. Jones, NAB 1A-BFN
- K. L. Krueger, POB 2C-BFN
- R. F. Marks, Jr., PAB 1A-BFN
- J. R. Rupert, NAB 1F-BFN
- K. W. Singer, LP 6A-C
- M. D. Skaggs, PAB 1E-BFN
- E. J. Vigluicci, ET 11A-K
- NSRB Support, LP 5M-C
- EDMS, WT CA-K

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ENCLOSURE

TENNESSEE VALLEY AUTHORITY  
BROWNS FERRY NUCLEAR PLANT (BFN)  
UNITS 1, 2, AND 3  
LICENSE RENEWAL APPLICATION (LRA) ,

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION (RAI) ,  
RELATED TO APPENDIX F: INTEGRATION OF BROWNS FERRY UNIT 1  
RESTART AND LICENSE RENEWAL APPLICATION

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(SEE ATTACHED)

**TENNESSEE VALLEY AUTHORITY  
BROWNS FERRY NUCLEAR PLANT (BFN)  
UNITS 1, 2, AND 3  
LICENSE RENEWAL APPLICATION (LRA) ,**

**RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION (RAI) ,  
RELATED TO APPENDIX F: INTEGRATION OF BROWNS FERRY UNIT 1  
RESTART AND LICENSE RENEWAL APPLICATION**

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By letter dated December 31, 2003, the Tennessee Valley Authority (TVA) submitted, for NRC review, an application pursuant to 10 CFR 54, to renew the operating licenses for the Browns Ferry Nuclear Plant, Units 1, 2, and 3. As part of its review of TVA's license renewal application, the NRC staff, by letter dated October 8, 2004, identified areas where additional information is needed to complete its review.

The specific area requiring a request for additional information (RAIs) are related to Appendix F: Integration of Browns Ferry Unit 1 Restart and License Renewal Application. Drafted forms of these RAIs were discussed with the TVA Staff in a telephone conference call on September 15, 2004.

Listed below are the specific NRC requests for additional information and the corresponding TVA responses.

**Section 2.3.3.14: Sample and Water Quality System**

**NRC RAI F 2.3.3.14-1**

LRA Section 2.3.3.14, "Sampling and Water Quality Systems," states that one of the intended functions of this system is to establish main steam isolation valve (MSIV) leakage pathway to the condenser (F.1) (denoted with a bold-bordered enclosure). Appendix F.1 states that the Unit 1 main steam piping from the outermost isolation valve up to the turbine stop valve, the bypass/drain piping to the main condenser, and the main condenser are being evaluated and modified as required to ensure the structural integrity is retained during and following a safe-shutdown earthquake (SSE). The sampling lines from the main steam system are shown as being subject to an AMR on license renewal drawing 2-47E610-43-1-LR (location E1) for Unit 2. However, the similar piping and components on license renewal drawing 1-47E610-43-1-LR (location E1) for Unit 1 are shown as not being subject to an AMR. It is not clear why this

portion of Unit 1 piping is not subject to an AMR. Explain why this portion of piping is not subject to an AMR.

#### **TVA Response to RAI F 2.3.3.14-1**

License renewal drawings depict components subject to an AMR based on the units' current licensing basis (CLB). As documented in Appendix F.1 of the LRA, the Unit 1 current licensing basis for main steam isolation valve leakage does not incorporate an alternate leakage treatment pathway utilizing main steam piping and the main condenser. Appendix F.1 identifies the activities required to be completed in order to make the subject licensing basis applicable to Unit 1. Since activities required by Appendix F.1 are not complete, the system 043 piping/components are not subject to an AMR at this time.

The DCN modification to implement this change into the plant for Unit 1 has not been implemented at the present time; therefore, the Unit 1 piping does not perform the alternate leakage pathway function. Once the modification has been implemented in the plant, Unit 1 license renewal drawing 1-47E610-43-1-LR will be revised and submitted during the annual update.

#### **Section 2.3.4.1: Main Steam System**

##### **NRC RAI F 2.3.4.1-1**

Section 2.3.4.1, "Main Steam System," states that one of the intended functions of the main steam system is to establish main steam isolation valve leakage pathway to the condenser. Section F.1 of LRA Appendix F states the Unit 1 main steam piping from the outermost isolation valve up to the turbine stop valve, the bypass/drain piping to the main condenser and the main condenser is being evaluated and modified as required to ensure the structural integrity is retained during and following an SSE. Portions of the main steam system (from the turbine building on) are not shown as being subject to an AMR on license renewal drawing 1-47E801-1-LR. However, the similar segments of piping are shown as being subject to an AMR on license renewal drawings 2-47E801-1-LR and 3-47E801-1-LR. On the basis of a review of the drawings and the information provided in LRA Sections 2.1 and F.1 of Appendix F, it is not clear why the sections of piping on license renewal drawing 1-47E801-1-LR are not subject to an AMR. Justify the exclusion of the piping sections in question from being within the scope of license renewal and being subject to an AMR.

#### **TVA Response to RAI F 2.3.4.1-1**

License renewal drawings depict components subject to an AMR based on the units' current licensing basis (CLB). As documented in Appendix F.1 of the LRA, the Unit 1 current licensing basis for main steam isolation valve leakage does not incorporate an alternate leakage treatment pathway utilizing main steam piping and the main condenser. Appendix F.1 identifies the activities required to be completed in order to make the subject licensing basis applicable to Unit 1. Since activities required by Appendix F.1 are not complete, the main steam system piping/components are not subject to an AMR at this time.

The DCN modification to implement this change into the plant for Unit 1 has not been implemented at the present time; therefore, the Unit 1 piping does not perform the alternate leakage pathway function. Once the modification has been implemented in the plant, Unit 1 license renewal drawing 1-47E801-1-LR will be revised and submitted during the annual update. The same components on Unit 1 will require an AMR as those shown on the Unit 2 and Unit 3 license renewal drawing.

#### **NRC RAI F 2.3.4.1-2**

Certain main steam system components in Units 2 and 3 associated with the reactor feed pump turbine drivers, the steam air ejector subsystem, and the steam seal regulator subsystem are highlighted as being subject to an AMR on license renewal drawings 2-47E801-2, 2-47E807-2, 3-47E801-2 and 3-47E807-2. The corresponding components for Unit 1 should likewise be subject to an AMR. However, the drawings which show these components, such as license renewal drawings 1-47E801-2 (shown as a continuation line on drawing 1-47E801-1) and 2-47E807-2 and 3-47E807-2 (the corresponding drawings for Unit 1) are not provided. As a result, the staff is unable to determine if all of the aforementioned Unit 1 components, which are within the scope of license renewal and subject to an AMR for Units 2 and 3, were identified. Provide license renewal drawing 1-47E801-2 and the Unit 1 drawing which corresponds to drawings 2-47E807-2 and 3-47E807-2.

#### **TVA Response to RAI F 2.3.4.1-2**

License renewal drawings depict components subject to an AMR based on the units' current licensing basis (CLB). As



documented in Appendix F.1 of the LRA, the Unit 1 current licensing basis for main steam isolation valve leakage does not incorporate an alternate leakage treatment pathway utilizing main steam piping and the main condenser. Appendix F.1 identifies the activities required to be completed in order to make the subject licensing basis applicable to Unit 1. Since activities required by Appendix F.1 are not complete, the system subject piping/components are not subject to an AMR at this time.

The DCN modification to implement this change into the plant for Unit 1 has not been implemented at the present time; therefore, the piping for Unit 1 does not perform the alternate leakage pathway function. Once the modification has been implemented in the plant, Unit 1 license renewal drawings 1-47E801-2-LR, 1-47E807-1, and 1-47E807-2 will be added to the Application and submitted during the annual update. The same components on Unit 1 will require an AMR as those shown on the Unit 2 and Unit 3 license renewal drawings.

#### **Section 2.3.4.5: Turbine Drains and Miscellaneous Piping System**

##### **NRC RAI F 2.3.4.5-1**

LRA Section 2.3.4.5 states that the intended function of the turbine drains and miscellaneous piping system is to establish the main steam isolation valve leakage pathway to the condenser. The entire LRA section is enclosed in a bold text box. Appendix F, Section F.1, "Main Steam Isolation Valve Alternate Leakage Treatment," states that the Unit 1 main steam piping from the outermost isolation valve up to the turbine stop valve, the bypass/drain piping to the main condenser and the main condenser is being evaluated and modified as required to ensure that the structural integrity is retained during and following an SSE. However, it is not clear where the alternate leakage treatment flow path to the condenser exists on license renewal drawings 2-47E807-2-LR and 3-47E807-2-LR. Identify which portions of these drawings contain components that are part of the leakage pathway to the condenser.

##### **TVA Response to RAI F.2.3.4.5-1**

The alternate leakage path makes sure that process lines that contain steam have a boundary established that contain an isolation point that assures a preferred leakage path to the condenser is established. The boundary was established at the first closed valve or fails closed valve on the red lines

continuing from LR drawings 2-47E801-2-LR, 2-47E807-1-LR, 3-47E801-2-LR, and 3-47E807-1-LR.

**Sections 2.3.2 and 2.3.3: Heating Ventilation and Air Conditioning System (HVAC) and Filtration Systems**

**NRC RAI F 2.3-1**

Appendix F to LRA states that, "Whenever text annotated with a bold border box appears in the LRA symbolizing a licensing or design basis that is only applicable to Units 2 and 3, a link is provided to the appropriate Appendix F section. Systems/Structures/Components Impacted. The impacted systems, structures, or components are identified with links to the appropriate Chapter 2 sections and the appropriate Chapter 3 sections." Since there is no text annotated with a bold border box that appears in either LRA Section 2.3.2.1, "Containment (Reactor Building Ventilation System)," LRA Section 2.3.2.2, "Standby as Treatment System," LRA Section 2.3.3.8, "Ventilation System (various plant buildings including the radioactive waste building and the DG buildings)," nor LRA Section 2.3.3.9, "Heating, Ventilation, and Air Conditioning System," it implies that the current licensing or design bases applicable to Units 1, 2 and 3 HVAC systems remain unchanged, even if Unit 1 is in letup condition while its design modifications are currently pursued to make BFN Unit 1 current licensing or design bases identical to those in BFN Units 2 and 3. Verify whether the licensing and design bases for HVAC and exhaust filtration systems described in LRA Sections 2.3.2.1, 2.3.2.2, 2.3.3.8, and 2.3.3.9 will remain unaffected for BFN Unit 1. If any changes are needed to be implemented for Unit 1 HVAC and exhaust filtration systems to make them identical to Units 2 and 3 systems, describe the process that implement these changes. Please identify the affected systems, structures, or components (SSCs) that are within the scope of license renewal in accordance with 10 CFR 54.4(a), and subject to an AMR in accordance with 10 CFR 54.21(a)(1), and provide the corresponding tables and drawings as applicable.

**TVA Response to RAI 2.3-1**

Section 2.3.2.1 did contain boxes around text concerning the hardened wetwell vent. The hardened wetwell vent modification has not been implemented on Unit 1 at the present time. Once the modification has been implemented in the plant the Unit 1 license renewal drawing will be revised and submitted at the annual update. The hardened wetwell vent modification does not

affect the HVAC portion of the system. The Standby Gas Treatment System (Section 2.3.3.2) is a common system that does not have a specific Unit 1 system so therefore no boxes were required in this section. The Ventilation System (Section 2.3.3.8) already contains Unit 1 components in scope and no additional components will be added so therefore no boxes were required in this section. The Heating, Ventilation, and Air Conditioning System (Section 2.3.3.9) already contains Unit 1 components in scope and no additional components will be added; therefore, no boxes were required in this section.